

Oreohelix-inhabited ranges of northern Arizona. All in between, and around and about one, tumble and roll in range upon range, a sea of mountains incalculable, and from none of them is any member of the genus as yet known. On most of them there seems doubtless little chance of its occurring, but on some of them it may. So although we have at last definitely established *Oreohelix* over on the California side of the line, there remain the greater problem of its further distribution and the possible occurrence of additional species, steps toward the elucidation of which we may hope will soon be taken.

A NEW LYMNAEID FROM IDAHO

BY JUNIUS HENDERSON

LYMNAEA IDAHOENSIS, new species. Plate 6, Figs. 8.

Shell rather small, globose, spire somewhat dome-shaped. Whorls about 4, the last constituting a very large part of the whole shell, the penultimate one usually much swollen, the others very small and inconspicuous, but little or not at all elevated above the succeeding whorl. Suture well impressed. Aperture more than half the length of the entire shell, widest below the middle. Peristome thin, not thickened by internal callus in any specimen at hand, gracefully curved above, somewhat more abruptly curved below. Columella forming a heavy, twisted plait, with thin callus reflected and closely appressed over the umbilicus. Without a lens the surface looks smooth and dull, but a good lens reveals crowded, wavy growth lines, crossed by faint spiral lines, with small malleations on some specimens. Color medium brown. Type specimen, in University of Colorado Museum: Altitude 17, diameter 11.5, height within aperture 8.5, width within aperture about 6 mm. Another example: Alt. 15.5, diam. 11, height within aperture 8.5 mm. In a large lot examined there is but little variation, chiefly in the elevation of the spire, as shown by the figures, and in the

prominence of the spiral sculpture, which is almost obsolete on some examples.

From the material figured as *apicina* and *solida* Lea in Baker's Lymnaeidae of North and Middle America, *idahoensis* differs markedly in form and in the swollen penultimate whorl. It bears little resemblance to Lea's original figures of those two species, which were both described from the same locality, near the mouth of the Willamette River in Oregon. Indeed, it may be that *solida* is not distinct from *apicina*. *L. binneyi* Tryon, which has been found not a great distance to the eastward, has a very different spire and differs in other respects.

Type locality of *idahoensis*, Little Salmon River, 16 miles north of New Meadows, Idaho, where it was abundant on rocks in a mountain stream, on July 31, 1930, all alive. Specimens were sent to Dr. F. C. Baker and Dr. H. A. Pilsbry, both of whom confirmed my belief that it was an undescribed species. We found no dead shells, and none of the live ones had the thickened peristome indicative of maturity in limnaeids. This is a common occurrence in Rocky Mountain limnaeids, and raised two inquiries, the answer to which I have not discovered. 1. What becomes of the shells of the snails which die? Our mountain streams are not usually sufficiently charged with acid to rapidly destroy the shells, which, even in slough water rendered highly acidulous by decomposition of vegetation, resist destruction for some time. Perhaps in some cases they are destroyed by attrition in swift water, but the absence of empty shells has been observed in quiet portions of streams where living specimens with their peristomes unthickened were abundant. In the present instance, possibly the empty shells, being lighter after the soft anatomy disappears, are swept away down stream. 2. Is it possible, as has been suggested by others, that under some circumstances certain species of limnaeids reach adult size and reproduce without thickening the aperture, though the same species under other conditions may thicken it? May one not also suspect that the short, dome-shaped spire of *L. idahoensis* is a distinct ad-

vantage in a swift stream, where a long, slender spire would be easily broken off? I am not yet certain as to which sub-generic group this species should be assigned.

VARIATION IN *CARINIFEX NEWBERRYI* (LEA) AND
LYMNAEA UTAHENSIS (CALL).

BY JUNIUS HENDERSON

Carinifex newberryi (Lea) was originally described as a *Planorbis*. Later the genus *Carinifex* was created to accommodate it, because of obvious differences in shell characters. Dr. Henry A. Pilsbry has recently written me that he has dissected *Carinifex* and found that the anatomy is the same as that of *Helisoma*. Consequently *Carinifex* should be reduced to subgeneric rank. As the tendency is to raise the old subgenera of *Planorbis*, such as *Helisoma*, *Menetus*, and *Gyraulus*, to generic rank, because of both shell and anatomical characters, probably hereafter the practice will be to write *Helisoma (Carinifex) newberryi*.

This has long been known as a very protean species, but conchologists have not been inclined to establish varietal names, as the variations are very numerous and intergrade thoroughly. If one begins naming them it is difficult to see where any lines may be satisfactorily drawn. It is doubtful whether the variations can be properly called even mutations. The variation is chiefly in the amount of elevation of the spire above the last whorl and a marked tendency toward scalariformity, with inevitable effect upon the general shape of the shell, and upon the width of the last whorl and of the umbilicus. The variation is so great and the gradation so minute that it is almost impossible to determine just what should be considered the normal form.

Chamberlin and Jones (The Mollusca of Utah, Bull. Univ. Utah, XIX, No. 4, p. 156, fig. 73, 1929) have recently described as a distinct species a remarkably scalariform specimen from Bear Lake, Utah, under the name *Carinifex ato-*